NASA SBIR and STTR Programs
Participation Guide

Updated July 2006

Introduction

This guide provides an overview of both the Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR) programs as implemented by the National Aeronautics and Space Administration (NASA). These programs provide opportunities for Small Business Concerns (SBCs) and Research Institutions (RIs) to participate in Government sponsored research and development (R&D) efforts. This guide describes NASA's operation of these programs, including key information on participation, points of contact, and resources for learning more about NASA's SBIR and STTR programs.

NASA issues annual combined Solicitations for the SBIR and STTR programs in July via the NASA SBIR/STTR website: **http://sbir.nasa.gov**. The Solicitation period is open for approximately two months and those selected for award are announced about three months after its closing. The Solicitations provide all the information needed to submit proposals.

What are the SBIR and STTR programs?

The NASA SBIR and STTR programs fund the research, development, and demonstration of innovative technologies that fulfill NASA needs as described in the annual Solicitations and have significant potential for successful commercialization. Commercialization encompasses the transition of technology into products and services for NASA mission programs, other Government agencies and non-Government markets. Technological innovation – the overall focus of the NASA SBIR and STTR programs – is vital to the performance of the NASA mission and to the Nation's prosperity and security.

The SBIR and STTR programs were established by public law, as amended, in 1982 (P.L. 106-554) and 1992 (P.L. 107-50). Both programs seek to increase opportunities for SBCs to participate in Government R&D, to improve overall United States competitiveness, and to increase national employment. STTR has the additional intent of developing collaboration between SBCs and non-profit RIs.

Federal agencies with extramural R&D budgets exceeding $100 million are required to administer an SBIR program. Agencies with extramural R&D budgets exceeding $1 billion are also required to administer an STTR program. Each agency administers its own program within directives issued by the Small Business Administration (SBA). The law has established SBIR funding at 2.5% and STTR funding at 0.3% of each participating agency's extramural R&D budget. NASA's annual funding for SBIR and STTR programs is approximately $125 million per year.

The statutory purposes of the SBIR/STTR programs are to stimulate technological innovation in the private sector; to strengthen the role of SBCs in meeting Federal research and development needs; to increase the commercial application of these research results; and to encourage participation of socially and economically disadvantaged persons and women-owned small businesses.

In addition to the statutes governing the SBIR and STTR programs, Executive Order 13329 (issued February 24, 2004) directs Federal agencies administering the SBIR and STTR programs to advance technological innovation in manufacturing through related R&D. Accordingly, the NASA SBIR and STTR Solicitations include agency needs related to manufacturing in compliance with this Executive Order.

Who is eligible?

The recipient of an SBIR or STTR funding award, in accordance with SBA directives, must qualify as a Small Business Concern (SBC), which is

- Legally established and organized for profit with the place of business located in the U.S.;
- Operated primarily in the U.S. or makes a significant contribution to the U.S. economy;
- Majority owned and controlled by U.S. citizens or permanent resident aliens; and,
- 500 employees or less, including any affiliates.

For the SBIR program, the Principal Investigator (PI) must be primarily employed by the SBC (equivalent to at least 50% of the PI's work time), and precluding full time employment with another organization. The STTR program permits employment of the PI by either the SBC or the RI.

What are the benefits of participating?

The SBIR and STTR programs provide opportunities for SBCs and partnering RIs to work with NASA to advance proposed innovations and transition resulting technologies, products and services into NASA mission programs and other markets. Other benefits of an SBIR/STTR contract with NASA include:

- "Equity-free" funding to explore, develop and demonstrate the feasibility of proposed innovations;
- Non-disclosure of proprietary data provided under the contract for a period of four years;
- Data and intellectual property rights necessary for commercialization, including ownership of data, copyrights, and inventions resulting from the performance of the contract; and

- Fulfillment of the Federal procurement competition requirements, enabling the award of follow-on, Phase 3 contracts by NASA, other Federal agencies and prime contractors to the Government without further competition.

Participants in the NASA SBIR and STTR programs report other benefits as well:

- Gaining additional credibility after winning an SBIR/STTR contract in the search for capital, equipment, or services;
- Obtaining exposure, experience, and contacts within NASA that has led to other contracts or subcontracts; and
- Receiving the debriefing comments from detailed technical evaluations, which helps the SBC understand the strengths and weaknesses of their proposal.

Overall, participating SBCs and RIs are challenged to develop, transition and bring to market their innovative concepts and technologies in ways that create benefits and contribute to the NASA mission, the Nation's prosperity and their commercial growth.

How are the programs structured?

The structure of the SBIR and STTR programs reflects the Congressional understanding that the innovation process and bringing new products and services to the market takes time and has a high degree of technical and business risk. The programs have three phases:

Phase 1 is the opportunity to establish the scientific, technical and commercial merit and feasibility of the proposed innovation in fulfillment of NASA needs. All Phase 1 contracts are selected competitively and require reporting on the work and results accomplished, including the strategy for the development and transition of the proposed innovation. NASA SBIR Phase 1 contracts last up to 6 months with a maximum funding of $100,000. STTR Phase 1 contracts are typically for one year with a maximum funding of $100,000.

Phase 2 is focused on the development, demonstration and delivery of the proposed innovation. It continues the most promising Phase 1 projects through a competitive selection based on scientific and technical merit, expected value to NASA, and commercial potential. All Phase 2 contracts require reporting on the work and results accomplished, and whenever possible, the delivery of a prototype unit or software package, or a more complete product or service, for NASA testing and utilization. Both SBIR and STTR Phase 2 contracts are usually for a period of 24 months with a maximum funding of $600,000.

Phase 3 is the commercialization of innovative technologies, products and services resulting from Phase 2, including their further development for transition into NASA programs, other Government agencies, or the private sector. Phase 3 contracts are funded from sources other than the SBIR and STTR programs and may be awarded without further competition.

How are proposals selected for award?

NASA's SBIR and STTR programs are highly competitive. Historically, 13% of SBIR Phase 1 proposal submissions receive awards, while 20% of STTR Phase 1 proposals receive awards. About 40% of the completed Phase 1 projects receive funding for Phase 2 development. NASA funding awards for SBIR and STTR projects are issued as contracts between NASA and the SBC.

All proposals must be submitted in response to the annual SBIR and STTR Solicitations. All proposals are screened for compliance with the proposal submission requirements, including relevance to NASA needs described in the Solicitations. All proposals are evaluated and selected through a competitive procurement process in which each proposal is evaluated by NASA scientists and engineers based on factors described in the Solicitations. These factors are:

- Scientific/Technical Merit and Feasibility;
- Experience, Qualifications and Facilities;
- Effectiveness of the Proposed Work Plan;
- Commercial Potential and Feasibility, including emphasis upon the transition of innovative technology, product and services into NASA mission programs.

Proposals recommended for award are ranked in priority order by the cognizant NASA center. The SBIR/STTR Source Selection Official at NASA Headquarters selects proposals for contract negotiations.

The Request for Proposal for Phase 2 is included within the Phase 1 contract. If the SBC chooses to compete for Phase 2 funding, the proposal is due at the end of the Phase 1 contract performance period. A Phase 2 proposal is accepted only from the SBC conducting the Phase 1 project.

What are the differences between the SBIR and STTR programs?

Key elements of the two programs are summarized below. The annual Solicitations should be reviewed for further information on the requirements of the programs.

	SBIR	STTR
Maximum Contract Value	**Phase 1** - $100,000 **Phase 2** - $600,000	**Phase 1** - $100,000 **Phase 2** - $600,000
Phase 1 Duration	Not more than 6 months	Not more than 12 Months
Primary Employment	Primary employment of the PI must be with the SBC at the time of award and during the conduct of the project. Primary employment means PI will average a minimum of 20 hours per week with the SBC, and that more than half of the PI's total employed time is spent with the SBC.	PI must be primarily employed with either the SBC or RI, with the equivalent definitions as in SBIR for time and amount.
Cooperative Agreement	Not Applicable	The offeror must submit a written agreement between the SBC and the RI.
Allocation of Rights Agreement	Not Applicable	May be requested by the Contracting Officer after the SBC is selected for contract award.
Work Distribution	SBC may perform up to 100% of the work.	Not less than 40% of the work is to be performed by the SBC and not less than 30% is to be performed by the RI.
Subcontractors/ Consultants	Must not exceed one-third of the research and/or analytical work for Phase 1 and one-half for Phase 2.	Minimum of 40% of the work is to be performed by the SBC and not less than 30% is to be performed by the RI. Up to 30% of the work may go to a subcontractor.
Historical Award Percentage	**Phase 1:** About 13% of proposal submissions **Phase 2:** About 40% of the successfully completed Phase 1 projects	**Phase 1:** About 20% of proposal submissions **Phase 2:** About 40% of the successfully completed Phase 1 projects

What are the SBIR and STTR research areas?

The SBIR and STTR Solicitations are produced in partnership with NASA's Mission Directorates and centers to focus on the agency's priority mission needs. These needs, updated annually, are organized under topics and subtopics. Proposals eligible for award must address one or more needs within a subtopic.

The Solicitations (**http://sbir.nasa.gov**) include tools employing text search and a technology taxonomy that are available to help find subtopics of interest. The technology taxonomy also allows a SBC or RI to find subtopics whose text may not include specific technical words but which are relevant.

SBIR

NASA's Mission Directorates and centers manage the topics and subtopics for the Solicitations. Topics and subtopics evolve in keeping with the agency's mission needs and priorities. Each subtopic is normally the responsibility of one NASA center, noted as "Lead Center" in the Solicitation, with assistance from "Participating Centers."

All four NASA Mission Directorates participate in the SBIR program:

AERONAUTICS RESEARCH MISSION DIRECTORATE
http://www.aerospace.nasa.gov

NASA is the nation's leading Government organization for aeronautical research. This world-class capability is built on a tradition of expertise in core disciplines. The Aeronautics Research Mission Directorate brings to realization NASA's dedication to the mastery of core competencies in subsonic, supersonic, and hypersonic flight. This Directorate will develop system-level, multi-disciplinary capabilities to meet the needs of both civilian and military communities.

EXPLORATION SYSTEMS MISSION DIRECTORATE
http://www.exploration.nasa.gov

The Exploration Systems Mission Directorate develops capabilities and supporting research and technology that enable sustained and affordable human and robotic exploration and that ensure the health and performance of crews during long-duration space exploration. This Directorate will develop the robotic precursor missions, human transportation elements, and life support systems for the near-term goal of lunar exploration.

SCIENCE MISSION DIRECTORATE
http://science.hq.nasa.gov

The Science Mission Directorate develops and operates an overall program of science and exploration. Objectives include the following: (1) study planet Earth from space to advance scientific understanding and meet societal needs; (2) understand the Sun and its effects on Earth and the Solar System; (3) advance scientific knowledge of the origin and history of the solar system, the potential for life elsewhere, and the hazards and resources present as humans explore space; and (4) discover the origin, structure, evolution, and destiny of the universe, and search for Earth-like planets.

SPACE OPERATIONS MISSION DIRECTORATE
http://www.hq.nasa.gov/osf

The Space Operations Mission Directorate evolves and innovates the operational capabilities for the agency and synergistically guides the development of certain operational systems, such as communications. The Directorate provides the foundation for NASA's space programs — space travel for human and robotic missions, in-space laboratories, and the means to return data to Earth. It provides space access with a high standard of safety, reliability, and affordability. The focus of the Directorate's SBIR activity is to provide affordable communications for exploration, science and space access services.

STTR

STTR topics and subtopics focus on needs associated with the core competencies of NASA's centers in support of NASA mission programs. Each participating center has two subtopics grouped under a topic titled with the center name.

Where can I obtain more information?

The NASA SBIR/STTR website (**http://sbir.nasa.gov**) contains Solicitations and schedules, along with a wealth of related information. Documents and information available include prior award lists, technical abstracts, program statistics, procurement information, and links to state and private assistance organizations.

The **SBIR/STTR Firm's Library** (**http://sbir.nasa.gov/samples**) provides specific help in meeting proposal and contract requirements. The Firm's Library offers templates and samples of all potential Phase 1 and Phase 2 deliverables from proposal submissions through the life of the contract. Samples include proposals, forms for proposals and contract negotiations, cooperative agreements (STTR), briefing charts, and reports. In addition, templates and samples for items such as business plans, briefing charts, and success story documentation are available.

NASA TechSource (**http://sbir.nasa.gov/technologies**) provides searchable information on current and recently completed SBIR and STTR Phase 2 projects funded by NASA.

The **NASA SBIR/STTR Archive** of proposal abstracts of previous NASA Phase 1 and 2 awards, accessible via the NASA SBIR/STTR website, is also available to assist the formulation of proposals.

The **NASA Innovative Partnerships Program** (**http://www.ip.nasa.gov**) provides additional online technology resources for exploring other NASA research, technology, expertise and R&D capabilities.

How do I prepare a Phase 1 proposal?

Basic requirements differ in certain important details among the agencies that operate SBIR/STTR programs. Thus a careful review of the NASA SBIR-STTR Solicitations is necessary to comply with the instructions and requirements for an acceptable and competitive proposal to NASA. Tools for submission of proposals, contract management, and samples of required documents are provided on the SBIR/STTR website under the link entitled Handbooks. Proposal submission tools are only available during the open Solicitation period.

Highlights of the Phase 1 proposal instructions from the Solicitations are provided below.

A competitive Phase 1 proposal will clearly and concisely (1) describe the proposed innovation relative to the state of the art; (2) address the scientific, technical and commercial merit and feasibility of the proposed innovation and its relevance and significance to one or more NASA needs within a subtopic of the Solicitations; and (3) provide a preliminary strategy that addresses key technical, market, business factors pertinent to the successful development, demonstration of the proposed innovation, and its transition into products and services for NASA mission programs and other potential customers.

Phase 1 proposals are limited to 25 pages and must include the following items in the specified order:

1. Cover Sheet (Form A);
2. Proposal Summary (Form B);
3. Budget Summary (Form C);
4. Technical Content;
5. Technology Taxonomy and Briefing Chart (not included in the 25-page limit. The Briefing Chart must not contain proprietary data).

The technical content must contain the 11 parts listed below, in order, and must not exceed 22 pages for SBIR and 21 pages for STTR including all graphics and the Table of Contents. Each form counts as one page each. The space allocated to each part will depend on the project chosen and the SBC's approach:

Part 1: Table of Contents
Part 2: Identification and Significance of the Proposed Innovation
Part 3: Technical Objectives
Part 4: Work Plan
Part 5: Related R/R&D
Part 6: Key Personnel and Bibliography of Directly Related Work
Part 7: Relationship with Future R/R&D
Part 8: Company Information and Facilities
Part 9: Subcontracts and Consultants
Part 10: Potential Post Applications (Commercialization)
Part 11: Similar Proposals and Awards

In addition, proposals to the STTR program require the electronic submission of the cooperative agreement between the SBC and the RI. A model agreement is provided in the Solicitations, or offerors can create their own agreement. This agreement counts as one page toward the 25-page limit.

A non-proprietary one-page briefing chart is requested to assist in the ranking and advocacy of proposals prior to selection. This chart is not counted against

the 25-page limit. Its submission, along with classifying the proposed innovation within the technology taxonomy, also enhances NASA's use of project results.

Each proposal submitted must address one or more NASA needs within just one subtopic. An SBC may submit more than one proposal to the same subtopic; however, the SBC should not submit the same (or substantially equivalent) proposal to more than one subtopic. NASA will not accept more than 10 proposals to either program from any one company. The acceptance of awards for essentially equivalent work being performed at any other agency of the Federal Government is not allowed and is considered fraudulent and subject to criminal prosecution.

All Phase 1 contracts require the delivery of reports that present (1) the work and results accomplished; (2) the scientific, technical and commercial merit and feasibility of the proposed innovation; (3) the relevance and significance to one or more NASA needs; and (4) the strategy for development and transition of the proposed innovation into products and services for NASA mission programs and other potential customers.

The negotiated Phase 1 contract contains the Request for Proposal for the Phase 2 follow on project. Submission of a Phase 2 proposal is voluntary.

What sources of assistance are available?

Since the inception of the SBIR and STTR program a wide range of public and private sector programs and services have emerged to assist SBCs in all phases of the programs.

The SBA (**http://www.sba.gov/sbir**) provides information on the SBIR and STTR programs across the federal government as well as other programs and services that provide assistance for the development of small businesses and their participation in the SBIR and STTR programs.

The National Science Foundation sponsors an extensive website for the overall SBIR/STTR community (**http://sbirworld.com**).

The following organizations and individuals may be contacted for assistance concerning participation in the NASA SBIR/STTR programs.

NASA SBIR/STTR Help Desk

REI Systems, Inc.
NASA SBIR-STTR Support Office
4041 Powder Mill Road, Suite 311
Calverton, MD 20705-3106
Telephone: 301-937-0888
email: **sbir@reisys.com**

NASA SBIR/STTR Program Management Office

The Innovative Partnership Program within the Office of the NASA Associate Administrator at NASA Headquarters provides overall management for the NASA SBIR/STTR programs. The NASA SBIR/STTR Program Management Office, which operates the programs in conjunction with NASA Mission Directorates and centers, is hosted at the NASA Goddard Space Flight Center.

Program Executive and Selection Official:
Mr. Carl G. Ray
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NASA Center SBIR and STTR Program Managers

The prime contacts at each NASA center are the SBIR/STTR Program Managers listed below. Those interested in submitting proposals may communicate with NASA mission program personnel and researchers to learn about the needs and objectives of mission programs except when a Solicitation is active (between the date of issue and the deadline for receipt of proposals).

Ames Research Center (ARC):
Mr. Ryszard Pisarski
MS 202A-3/Ames Research Center
Moffett Field, CA 94035-1000
Telephone: 650-604-0149
email: **Ryszard.L.Pisarski@nasa.gov**

Dryden Flight Research Center (DFRC):
Mr. Ronald M. Young
MS 1100/Dryden Flight Research Center
Edwards, CA 93523-0273
Telephone: 661-276-3741
email: **Ron.Young@nasa.gov**

Glenn Research Center (GRC):
Ms. Gynelle C. Steele
MS 4-8/Glenn Research Center
Cleveland, OH 44135-3127
Telephone: 216-433-8258
email: **Gynelle.C.Steele@nasa.gov**

Goddard Space Flight Center (GSFC):
Dr. E. James Chern
Code 502/Goddard Space Flight Center
Greenbelt, MD 20771-0001
Telephone: 301-286-5836
email: **Engmin.J.Chern@nasa.gov**

Jet Propulsion Laboratory (JPL) *(SBIR only)*:
Mr. Wayne R. Schober
MS 202-233/Jet Propulsion Laboratory
Pasadena, CA 91109-8099
Telephone: 818-354-8581
email: **Wayne.R.Schober@jpl.nasa.gov**

Johnson Space Center (JSC):
Dr. Kumar Krishen
Code HA/Johnson Space Center
Houston, TX 77058-3607
Telephone: 281-483-1348
email: **Kumar.Krishen-1@nasa.gov**

Kennedy Space Center (KSC):
Mr. Charles Griffin
Code YA-C1/Kennedy Space Center
Kennedy Space Center, FL 32899-0001
Telephone: 321-867-6225
email: **Charles.H.Griffin@nasa.gov**

Langley Research Center (LaRC):
Mr. Robert L. Yang
MS 211/Langley Research Center
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MS ED03/Marshall Space Flight Center
Huntsville, AL 35812
Telephone: 256-544-6719
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Ms. Helen C. Stinson (STTR)
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Stennis Space Center (SSC):
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Additional Sources of Assistance

Additional sources of assistance available to participants in the NASA SBIR/STTR programs include the following organizations:

The **National Technology Transfer Center** (**http://www.nttc.edu**) works with NASA and other agencies to provide services and capabilities for the transfer and commercialization of federally-funded R&D. The NTTC's technology commercialization services are available to participants in the NASA SBIR/STTR programs.

Technology Tree Group, Inc. (**http://www.technology-tree.com**), a development company focused on technology commercialization, works with NASA SBIR firms and investment sources to commercialize technologies funded by NASA.

NASA's agreements and joint efforts with the NTTC and Technology Tree are part of an emerging alliance of business incubators, early-stage investors and technology commercialization organizations working with the NASA SBIR/STTR community. This initiative – the NASA Alliance for Small Business Opportunity – is designed to assist the commercialization of innovative technologies in ways that contribute to business growth, NASA mission performance and the Nation's prosperity.

SBIR & STTR:

Small Business Innovation for NASA and the Nation